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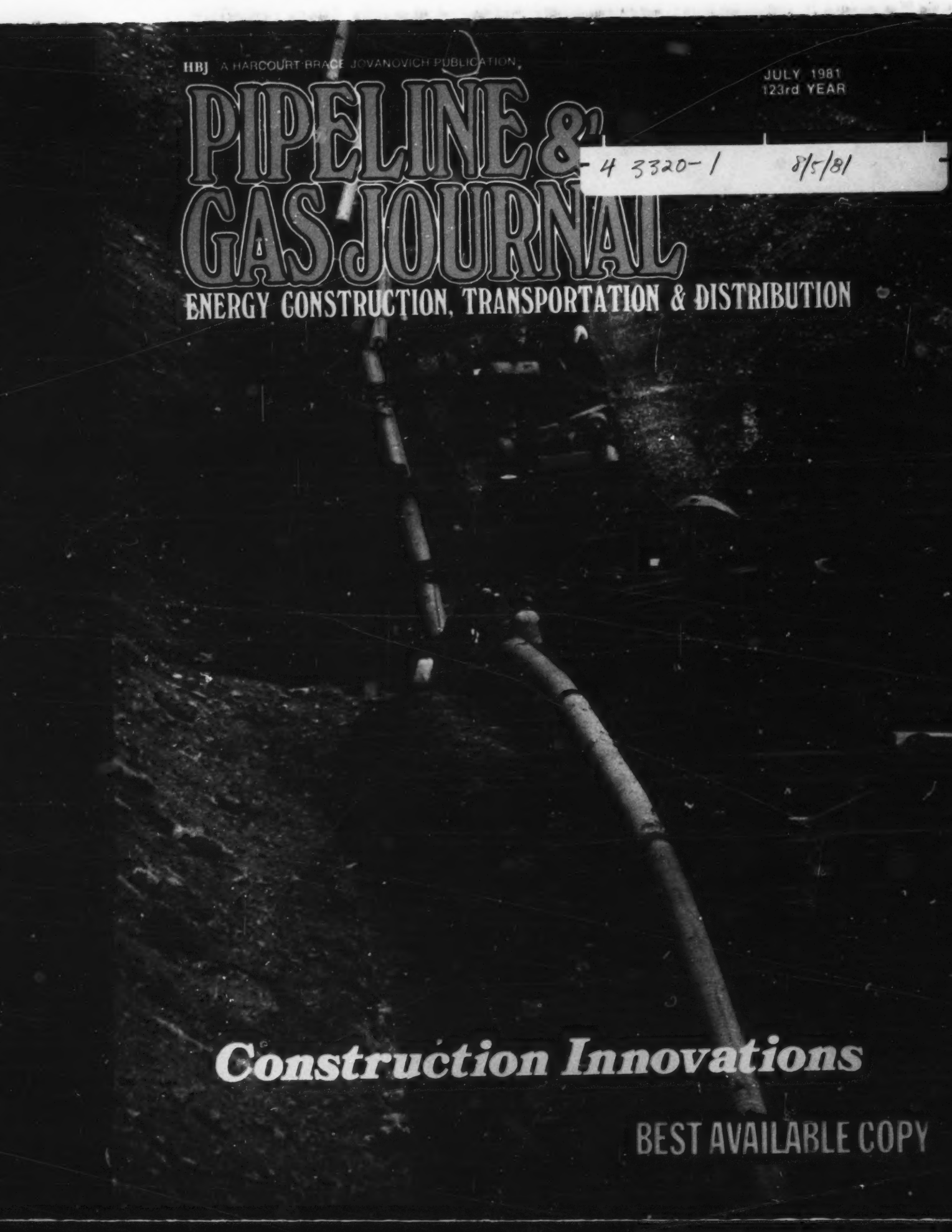

Construction Innovations

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COVER
Pipeline construction on the move is typified by this view of crews at work on the Phillips Pipe Line Co.'s 420-mile Borger, Tex., to Paola, Kan., products line.

—Photo courtesy Phillips Petroleum Co.

Construction Innovations 17
Pipeliners have risen to unique challenges with new and improved ways of putting pipe in the ground; P&GJ takes a closer look at some of the best solutions of the past 12 months.

New Mapco NGL Lines Cover Rockies To Gulf 26
Newest links in U.S. gas liquids pipeline network are Mapco's new Rocky Mountain Line and the soon-to-be-completed Seminole Line that will open new markets for Western gas liquids.

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Clean Bearings Important To Equipment Performance 46

Fire-Damaged Compressor Rebuilt In 99 Days 49
Consolidated Gas Supply Corp. had a problem when fire damaged an important compressor but quick work by Cooper Energy Services got the equipment back online quickly.

Testing And Calibrating Procedures For Turbine Meters 50
An inaccurate meter is a very expensive proposition, and Part 1 of a two-part series details how accuracy can be insured.

What's New In Construction Equipment 56
From improved controls to more powerful engines, new machines for pipeliners feature improvements designed to boost productivity and efficiency.

Fast Calorimeter, Feedback Loop Combine To Regulate BTU Value 69

Automatic Clock Thermostat: Lower Bills, Quick Payout 72

Energy Economics

Automatic Clock Thermostats: Lower Bills, Quick Pay-Out

P&GJ Staff Report

Horse sense tells us that judicious use of the home thermostat can help cut winter heating bills, and for many, that twist of the dial before retiring has become almost a reflex. Almost – but not always: People forget.

Automatic clock thermostats – the combination of thermostat and automatic timer – can be an easy, cost-effective means of reducing winter-season gas consumption and lowering the annual utility bill average. At $60 to $150 plus installation fee, the units are affordable to most homeowners, and pay-out can be quick: from one to two years, depending on how strictly they are used and on how much help they get from extra insulation, weatherstripping, "house-doctoring," etc.

These conclusions are drawn from a study* of potential home-heating savings in New York State, based on setting back temperatures at night and during periods when no one is home.

*"Reducing Home Heating Costs In New York State With Clock Thermostats," Energy Management Information Center, Honeywell Inc., Minneapolis, Minn. November 1979.

NEW YORK STATE AVERAGE GAS USAGE AND COST

City	Normal Degree Days Annually	Estimated Heating Usage in MMBtu/yr	×	Heating Cost Per MMBtu[1]	=	Annual Heating Cost[2]
Buffalo	6927	154		$3.32		$511
Albany	6888	153		$3.55		$543
Rochester	6719	151		$4.20		$634
Syracuse	6678	150		$3.55		$533
New York	4909	123		$5.00		$615

[1]Representative of Fall 1979 heating prices.
[2]Estimated gas-heating usage multiplied by heating cost.

NEW YORK STATE ANNUAL GAS SAVINGS – DUAL SETBACK

City	Average Annual Heating Cost	×	% Saved: 5-Deg Dual Setback	=	Annual Savings[1]	% Saved: 10-Deg Dual Setback	=	Annual Savings[1]
Buffalo	$511		11%		$56	17%		$ 87
Albany	$543		13%		$71	19%		$103
Rochester	$634		13%		$82	19%		$120
Syracuse	$532		13%		$69	19%		$101
New York	$615		14%		$86	20%		$123

[1]Percent multiplied by average annual heating cost.

NEW YORK STATE ANNUAL GAS SAVINGS – NIGHT SETBACK

City	Average Annual Heating Cost	×	% Saved: 5-Deg Night Setback	=	Annual Savings[1]	% Saved: 10-Deg Night Setback	=	Annual Savings[1]
Buffalo	$511		6%		$31	10%		$51
Albany	$543		7%		$38	11%		$60
Rochester	$634		7%		$44	11%		$70
Syracuse	$532		7%		$37	11%		$59
New York	$615		8%		$49	12%		$74

[1]Percent multiplied by average annual heating cost.

Five cities were profiled – Albany, Buffalo, New York, Rochester, and Syracuse – and the figures for natural gas quoted by local and regional utilities. Estimates given are typical for a single-family residence in each of the five cities.

According to the study, up to 20% savings in home gas-heating costs can be achieved by lowering house temperatures for eight-hour periods during sleeping hours and when no one is home. This "dual setback" regimen requires four daily adjustments of the manual thermostat but can be programmed into any automatic clock-type unit to eliminate the probability of someone's forgetting to lower the setting. "Night setback" – a single, eight-hour period during sleeping hours – requires only two daily settings, either manually or programmed.

The study found that by lowering the temperature from 70 F to 60 F during sleeping hours and when no one is home, the typical Buffalo homeowner would accrue annual gas bill savings of $87 – a 17% reduction at Fall 1979 prices (see tables). Five-degree dual setback from 70 F to 65 F would save the Buffalo homeowner $56 (11%) annually while his New York counterpart would do even better, saving $86 (14%) for the same modest effort.

Ten-degree (70 F-60 F) night-only setback would produce $51 (10%) in yearly savings for the Buffalo homeowner, $74 (12%) for the New Yorker. In Buffalo, five-degree night-only setback is worth $31 (6%) annually and $49 (8%) in New York.

Typical price of an automatic clock thermostat is cited by the study at $75, excluding installation – a figure well within a one-year payback range for dual-setbacking homeowners. As filip for the energy conscious, the Internal Revenue Service extends an "energy credit" of 15% of purchase and installation costs for clock thermostats – even in rented houses. **P&GJ**